The Excavating Engineer

Vol. 20 NOVEMBER 1926 No. 11

Steam Trench Machine at Work on Pleasant Street, River Park, Indiana — the ¾-Yard Shovel Is Moving the Spoil Back Here, Where Banks Got Too High.

Large Scale Sewer Construction in Indiana

Descriptions of the Work of George Pontarelli, Who During the Last Two Years Has Completed Sewer Contracts Amounting to Over Three-Quarters of a Million Dollars, and Who Is Now Working on a $707,000 Contract at Evansville, Indiana

WITH the completion of his Evansville contract, at the end of this season, Mr. Pontarelli will have successfully completed almost a million and a half dollars worth of sewer construction in a little over two years.

In 1924 George Pontarelli started work upon the construction of a sewer for the city of South Bend, Indiana, which involved the laying of sixteen miles of pipe at the cost of $375,000. At Gary, Indiana, his organization completed two jobs, one at a cost of $200,000, and a small one at the cost of about $15,000. At Michigan City he put through promptly a $115,000 job, and his organization is today working on sewer construction for the city of Evansville, Indiana, which will entail about $707,000.

Any story of the work of Mr. Pontarelli's work would not be complete without a short story of his life. He was born in a little village near Rome, Italy, about fifty years ago. His family was not well-to-do, and he worked and lived in his home village until he had saved up enough money to come to America by steerage. His first work was on the business end of a hand shovel on a sewer job in Philadelphia. With money thus saved he was able to return to his native land and marry a girl from his native town. Eleven years after he first came to this country he had saved $10,000 (he had been foreman on the job for some years) and he started in a little contracting business of his own. At first his work was little hand jobs, and he had a gang of from ten to fifteen men; later on he got together enough money to buy some machinery and take on bigger jobs; today he has over $200,000 worth of machinery and equipment, a nice little home in Chicago, and

property improved by the spoil from his sewer operations in Michigan City, South Bend, Gary and Evansville. It is an unusual story, and although every young man has the same opportunity ahead of him, it should not be forgotten

Part of the Backfilling and Grading Outfit at Work on 22nd Street, River Park, Indiana. The Cut was 25 Feet Deep Here.

that this success is due to hard work, careful work, good judgment and the ability to get along with men. A serious lack in any one of these may ruin the chances for success.

The Sewer Construction at South Bend, Indiana

In South Bend, Indiana, George Pontarelli's work lay in the suburban district known as River Park. This district, which has developed phe-

¾-Yard Shovel Backfilling at 22nd and Wall Streets, River Park, Indiana, Where Junction Chamber Was Located

nomenally in recent years, forms an accurate indication of the thriving growth of South Bend. The area in which the sewer construction lay amounted to 803 acres, and included the territory bounded on east and west by 20th and 33rd Streets and on north and south by the river and Jefferson Boulevard.

Pipe Sizes Range from Six Inches to Seventy-two Inches Diameter

The contract called for the laying of all sizes of pipe ranging from large concrete pipe seventy-two inches in diameter to six-inch vitrified, the latter used, of course, for the house connections. The excavation lay through sand and gravel, a great deal of which is found in this section. The trenches varied in depth from 10 feet to as deep as 30 feet. In digging the trenches for the larger pipes, that is, from 30 inches to 72 inches, the work was handled with a Bucyrus 30-B dragline, the machine backing away from the cut and depositing the material on either side of the ditch. The trenches for the smaller pipe were handled by two Austin trenchers, one a steam machine and one gasoline driven. The trenching machines made cuts as deep as 14 feet, and when deeper

A Close Up of the 72-Inch Pipe on Pleasant Street, River Park, Indiana. Note Sand Bags Piled Around the Top of the Pipe to Hold Back the Backfill.

work was required either the 30-B was called into play or a smaller ¾-yard steam dragline, a Bucyrus 20-B, did the work. The trenching machines, as well as the draglines, deposited the material on the sides of the trench and when the laying of the sewer pipe was completed two Buckeye backfillers did the backfilling.

Contractor Purchased and Filled In Low Lots, Thus Disposing of Waste and Increasing Profit

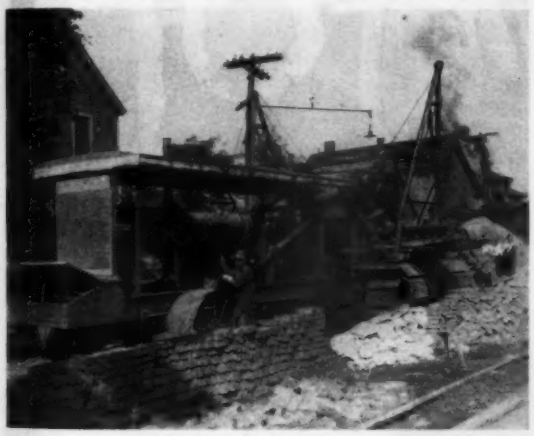
In many sewer construction contracts the efficiency with which the surplus material is disposed of is often the factor which decides whether or not the work is handled by the contractor at a profit. On this River Park job Mr. Pontarelli made use of a rather novel procedure. He purchased a number of low lying lots, and with the surplus earth filled them up to grade, thus getting a dump for the spoil and increasing the resale value of his real estate investment. This

spoil was handled from the sides of the ditch by an Erie steam shovel and hauled away to Mr. Pontarelli's lots in motor trucks.

In some cases real heavy digging was encountered by the trenching machines, and this

Sections of pipe weighing several tons being laid with a Bucyrus 50-B dragline. The sections shown here are the 96-inch size.

occasionally resulted in the spoil banks being too high. This was overcome by placing alongside the trencher a shovel which moved the material back from the edge of the cut.



A Buckeye traction ditcher equipped with a Twin City gasoline engine at work digging a trench 20 feet deep and 7 feet wide.

Only Small Length of Trench Kept Open

The work was so organized that only from 30 to 40 feet was kept open at one time, the back fillers following close upon the gang laying the pipe. To avoid inconvenience caused by backfilling so close to the pipe-laying gang, in the case of the larger pipes, sand bags were laid around the top of the laid pipe to hold back the backfill. As new sections were laid these bags were moved forward. The joints on the larger pipes were handled by placing a steel bank inside and pouring liquid mortar into the joints. This method of handling the joints proved very satisfactory, and Mr. Raymond L. Pike, engineer and superintendent on the job, tells us that some unusually excellent joints resulted from this mechanism.

Much Water Encountered on Job

In addition to the sand and gravel which constituted the majority of the material moved, occasional hard clay and water sand were encountered which added considerably to the difficulty of the work. At one point, at Wall and Jefferson Streets, four No. 4 domestic diaphragm pumps

Gate placed in the end of the pipe to prevent its being filled up with spoil during operations or as a result of slides during the night.

were kept constantly at work pumping the water from the trench; the quantity being removed was enough to tax the capacity of these machines.

Six-Inch Connection Laid Under Permanent Pavement Without Injuring Road

On Jefferson Boulevard the pavement of a permanent type had been laid, although no curbing or sidewalks were completed. Here the width of the street was 85½ feet, and the sewer was laid about 10 feet from the edge of the pavement which was only 18 feet wide. Because the pavement was new every precaution was taken to keep from injuring either the hard surface or the foundation. This problem is somewhat complicated by the fact that it was necessary to carry across the street thirty-six 6-inch house connections as well as eight 8-inch inlets. Placing this pipe under the pavement was accomplished by using cast iron water pipe and forcing it through the soil under the foundation course of the pavement with two 25-ton jacks. Pits were dug at the

side of the pavement, and two sections of pipe, one six feet and one twelve feet, were forced across the street by the heavy pressure jacks.

In addition to the laying of the pipe, a large junction chamber was built at the corner of

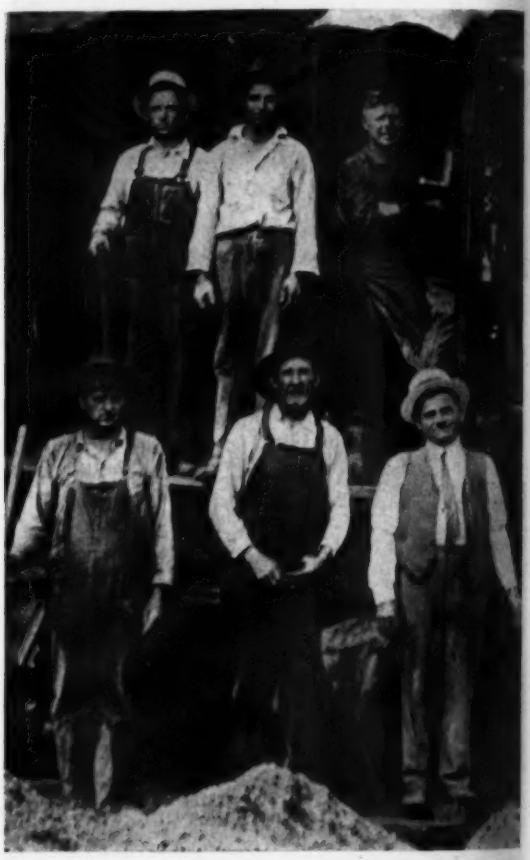
Gasoline Dragline at Work on Wall Street at River Park, Indiana — 42-Inch Pipe Was Laid Here at a Depth of 20 to 22 Feet.

Twenty-Second and Wall Streets. This chamber was of concrete, 27 feet long, 11 feet wide and 7 feet deep. The top of the chamber was 18 feet below the surface and was built to take care of a 54-inch, 47-inch and 72-inch pipe.

A closeup of the ditch dug for 37-inch pipe. Note the width of trench left by this Buckeye ditcher. The Williams Clamshell bucket shown is being handled by a Bucyrus 20-B.

This job contained many problems, and the difficulties encountered from time to time required considerable ingenuity. Mr. Raymond Pike, who is now assistant engineer in charge of construction at South Bend, Indiana, was at that time engineer and superintendent on the job.

Mr. Pontarelli supervised a great deal of the work personally, and was on the scene of operations whenever possible. Frederick J. Anderson was the South Bend city engineer and Mr. Robert Gehes was the inspector.



The Shovel Crew and Some of the Workmen at River Park, Indiana, Mr. Pontarelli Standing on the Ground at the Right

125,000 Gallons of Water Per Day Encountered on the Job in Gary, Indiana

At Gary, Indiana, Mr. Pontarelli's organization completed the trunk sewer No. 47. This, although a somewhat smaller job than the River Park sewer, amounted to $200,000.

Here an unusual amount of difficulty was encountered because of excessive water. Many deep cuts had to be made, and Mr. Pontarelli

says that it is about the hardest job he ever tackled. The water was so bad that when they finally got their equipment rigged up to take care of it about 125,000 gallons of water per day was removed from the trench. The water was finally taken care of by well points sunk along the side of the trench at intervals of about 2 feet. Many methods were tried to sink these well points; driving was not successful and drilled holes filled up before the pipe could be put in. The successful method proved to be putting them down by use of a water jet with a pressure of 150 pounds. 650 of these points were sunk.

On this job, in addition to the laying of sewer pipe by the trench method, 1585 feet of tunnel work were necessary.

A Short Outline of the Present Work at Evansville, Indiana

Today Mr. Pontarelli's organization is working on the largest contract he has handled. The work is the construction of the Howard Roosa Sewer in Evansville, Indiana, which will serve an area of about two square miles. The total amount of the contract is $707,000, and calls for 19,760 feet of sewer, made up of 3,350 feet of 102-inch, 3950 feet of 96-inch, 2700 feet of 90-inch, 2900 feet of 72-inch, 650 feet of 66-inch, 4460 feet of 60-inch, 1100 feet of 57-inch and 650 feet of 48-inch. In addition to the laying of the sewer pipe the contract calls for 120 catch basins and 60 manholes. A further idea of the magnitude of the work may be had from the fact that the digging averages about 15 feet deep and runs as high as 42 feet.

Job Started Last May

The contract time for this Evansville work was two years, but Mr. Pontarelli's organization has rushed the construction along so that today it is expected that the entire work will be finished by December 31, 1926. Since it was started on May 1st, this year, the construction time will be just eight months' actual time instead of the two years allowed.

Five Draglines, and One Big Ditcher, Major Equipment on Job

For this big job in Evansville, Mr. Pontarelli is using five Bucyrus draglines, two 50-B machines, two 30-B's and one 20-B, all steam driven and caterpillar mounted, and one gasoline driven Buckeye traction ditcher, capable of digging a ditch 20 feet deep and 7 feet wide.

Mr. Pontarelli's work, in the case of large pipe, was arranged briefly as follows: On the larger sizes of pipe and where room permitted one dragline worked alone opening the cut, followed by a second machine which handled the sections of pipe and did a certain amount of backfilling. The spoil, and occasionally part of the backfill, is left on the sides of the cut to be handled later by one of the draglines. The spoil is hauled away to the dump by local contractors. The machine which handled the pipe was also equipped with an Owen clamshell bucket, with which, when necessary, the bottom of the trench was trimmed.

Operator Al Jonsoni and His Fireman T. Hiley

In laying the smaller sizes of pipe, the ditcher worked with the small dragline. The ditcher opened the trench and deposited the spoil along

Digging the ditch for 96-inch pipe. Both machines shown here are Bucyrus 50-B draglines. The machine in the background is digging to a secondary level preparatory to moving down onto this level and digging to the full depth. The machine in the foreground will then move around to rear and carry on the operations. The clamshell bucket shown at the side of the shovel is an Owen bucket.

the sides. The dragline operating as a clamshell (with Williams bucket) or as a crane, clammed the bottom of the trench where necessary, handled the sheeting and the sections of pipe and did the backfilling.

The work lay through yellow and blue clay with an occasional pocket of packed sand, but the dragline machines working on the large pipe, two working as a unit, averaged 100 feet of 102-inch completed sewer a day with a maximum of 165 feet. The ditcher, with its smaller half-yard clamshell machine working with it, averaged about 110 feet a day (60-inch pipe) and completed a maximum of 140 feet per day.

On all of his jobs Mr. Pontarelli is always right on the work, and this job at Evansville is no exception. He is on the work a large part of the time, and although he has able lieutenants who are thoroughly capable of carrying on, his active interest in the operations makes him supervise personally a great deal of the construction.

On the Evansville sewer Mr. M. E. Boelson is civil engineer on the work including pipe from 60 to 48-inch, and G. W. Jackson is the man on the larger sizes. The foremen of the pipe-laying gangs are Anthony Pontarelli, B. S. (Blackie) Lentz, and Tom Eaton. The foreman on the brick-laying job is Fred J. Reherman. A second of Geo. Pontarelli's sons, Eddie Pontarelli, acts as timekeeper on the entire job.

The operators of the two Bucyrus 50-B machines are Al Jonsoni and A. Bushman, who are assisted at the boilers by T. Hiley and T. Hoban. On the 30-B machines, Chas. English and Chas. Eaton are throwing the dirt, while O. H. Pritchett and John Crabtree keep up the pressure.

Burt Wynkoop is at the levers on the 20-B, with Leo Shaw making his smoke. J. C. Jones is operator of the Buckeye traction ditcher.

We are indebted to Mr. Pontarelli and his engineers in charge of construction for the information and pictures contained in this article.

A Huge Coal Mining and Power Developing Project in Australia

The Work of the Electricity Commission of Victoria at Yallourn Where Lie Some Twenty Thousand Millions of Tons of Brown Coal in Seams as Thick as 266 Feet

IN the state of Victoria, Australia, not much more than a hundred miles east of Melbourne, in the Latrobe Valley, is located the town of Yallourn. This name, "Yallourn" is a combination of "Yalleen" and "Lourn" meaning brown fire, and most assuredly the name is well chosen, for in this valley lie vast beds of brown coal, for the development of which the Victorian Electricity Commission has made extensive plans. Huge power plants are in operation which are supplying electrical energy to the Melbourne city council, the Melbourne Electric Supply Company, various metropolitan municipalities and large industrial consumers.

Investigation of Coal Bed Dates Back to 1866

In 1866, prospecting was first started in this area and the first analyses taken, and in the sixty years which have elapsed since these first investigations, the subject of utilizing brown coal has never ceased to receive attention. In 1891 and succeeding years unsuccessful attempts were made towards the mining of the brown coal. Until the year 1918, the mining of all brown coal was in the hands of the Mines Department. This department's first operations were started in 1916 in order to relieve the then acute shortage of coal in Melbourne. In 1918 the Electricity Commission, under authorization of the government, took over the area and opened up new cuts. The coal from the new cuts does not compare favorably with that taken from the old cut operated by the Mines Department, because of the high moisture content; but the location of the new workings on

The end of the open cut, showing two loaded coal cars coming up out of the pit. The cars are propelled by the rope haulage system which is automatic in its operation.

the south side of the river (the old workings were on the north), is such that beginning at one end the progressing cut will carry them down through the length of the main deposit.

At the present time the project is progressing with rapid strides. The coal-stripping operations are advancing, the town of Yallourn, in-

This view was taken after the overburden was taken off to such an extent that coal loading could be started. The 2¼-yard machine at the left is taking out the coal, while the 3½-yard machine in the background goes on with the stripping.

habited mostly by employees in the project, is growing, brick works have been established to supply building materials, briquetting works to prepare the brown coal for domestic purposes are in operation and the power plants are working full load. The Commission has laid out plans for an extensive development as the project grows with the increasing demand for both the coal and the electricity.

An 808-Foot Thickness of Coal

The area is ideally situated, lying in the Latrobe Valley. It brings the power plants close to the Latrobe River for condenser water and close to the cuts for fuel. As determined by boring, the width of the coal seams vary somewhat, but in most parts they are remarkably thick. In one instance a 1,000-foot bore passed through 808 feet of coal, the principal portion of which was in three tremendous beds, respectively 226, 227 and 166 feet thick. It is estimated that 20,000 millions of tons can be recovered by the open cut method, in the Latrobe Valley. The coal is of a deep chocolate color, and the principal deposits cover an approximate area of 800 square miles. The entire deposit is made up of brown coal alone, and judged to be not older than 20 million years. An average proximate analysis gives the following results:

Moisture	60%
Volatile hydrocarbons	20.5%
Fixed carbon	18%
Ash	1.5%

Present Cut Lies Below Water Level

The first cut opened by the Commission is close to the northern end of the coal deposit, near the power house and river, northeast of the town, and work is proceeding along the bed toward the east, where is located the "eastern construction camp," one of the first of the groups of buildings erected at the site of the works. This camp accommodates about 200 employees.

The whole of the area of the first open-cut is below the flood level of the Latrobe River, and a natural outlet for much of the surface water, which originally ran across the open-cut area, from the hills to the southwest. To guard against drainage troubles a levee bank has been built up which encloses the whole area of the open cut and dump banks. The drainage is now carried away in a drain around to the south of the levee.

Steam Shovels Start on 28-foot Overburden in 1922

The overburden is surprisingly shallow, the average depth being about 28 feet, consisting of sand, sandy clay and gravel. The preliminary

The Southern Coal Surface, Showing the Stripping Operations and Conveyor System in the Background

Stripping operations, the shovel dumping into the feeder. The feeders are equipped with roller crushers which prepare the overburden to a convenient size for handling by the conveyor system. A short conveyor leads from the feeder onto the main conveyor.

work in stripping the overburden consisted of digging an inclined cut down to the surface of the coal bed. A great deal of this was done by hand. In February, 1922, the first steam shovel for the work arrived. It was assembled and moved down the incline to the face of the overburden and started to work. The shovel moved straight across the width of the proposed cut, a distance of 600 feet, making a box cut as wide as the digging radius of the machine would permit. This first box cut ran north and south across the western end of the coal bed. The subsequent operations consisted in making parallel cuts working towards the east. The shovel worked right on the surface of the coal, thus clearing the whole of the overburden as the operations proceeded. In October a second and larger shovel was brought to the scene of operations and also put to work on the stripping of the overburden, and in the first part of 1926 still another machine was installed to work on the overburden, this latter machine being a dragline. To date, about 30 acres of coal surface have been exposed.

Overlooking the main offices and power buildings. The whole of the scheme is supervised from the main office, including mine, power plants, briquetting plant, etc. This cluster of buildings gives a fair idea of the size of the operations.

Shovel Burns Briquetted Coal

The shovels are a Bucyrus 150-B, a Bucyrus 175-B, and a Bucyrus Class-14 electric-driven dragline. The Bucyrus 150-B is equipped with a dipper of 2½-cubic-yards capacity, a 60-foot boom and 38-foot dipper handles. It is mounted on trucks. During the period from the beginning of January till the end of June, 1925, it worked 24 hours a day for six days a week without any serious hold up, removing about 125 tons of overburden per hour, or 3000 tons per day. Briquettes made from brown coal at the Commission's plant are used for fuel by this machine. The Bucyrus 175-B is equipped with a 3½-cubic-yard dipper, 75-foot boom and 48-foot handles. This machine is also truck-mounted. This shovel handles about 175 tons of overburden per hour or 4200 tons per 24-hour day. Since June, 1923, it has been working alone on the overburden, the other machine being put on the loading of the coal.

The purchase of the Bucyrus Class-14 dragline and the dragline equipment for the Bucyrus 175-B machine came as a result of the ever-increasing depth of overburden. The dragline makes possible a better, easier and more efficient handling of deeper overburden. The dragline also makes possible the handling of a wider cut.

The Old Open Cut Located Across the River to the North of the Present Workings

In the latter part of 1925, due to the increased use of electric power in the mine, the Commission

The 3½-yard Machine, Stripping Overburden

found it very desirable to convert the Bucyrus 175-B shovel from a steam machine to an electric machine. This change was very successfully made and found to be economical. At about the same time a complete set of dragline equipment was purchased for this machine that it may be readily converted from shovel to dragline or vice versa as the occasion demands.

Overburden Carried Away by Conveyor System

In order to cut down on the time lost in disposing of overburden, an endless conveyor system has been installed, resting on the original ground

During the very early part of the stripping operations it was possible to dump direct on to the bank as here shown. The spoil bank soon got too high, however, and it was necessary to install the conveyors with boom stacker that the overburden might be placed farther back and more evenly distributed.

level. The main conveyors run parallel to the face of the cut, the shovels depositing into feeders from which the overburden is carried at right angles to the face of the cut and deposited on to the main conveyor. The overburden is dumped at the side of the cut, a boom stacker receiving it from the conveyor and distributing it evenly by means of its ability to swing in an arc.

The feeders into which the shovels dump directly are equipped with roller crushers to break up the material into a suitable size to be handled. They are equipped with short 38-inch, eight-ply, rubber-covered belt running at 350 feet per minute, and are mounted on rails paralleling the progression of shovel. The main conveyor is comprised of four sections, the last section being the boom stacker which can be swung to and fro to distribute the overburden in such a way as not to make the dump too high. Each section is separate within itself, dumping onto the next section. The belt-driving machinery of each section is electrically driven, being supported by an inclined elevating truss which provides the overlap for discharging on to the next conveyor. All the conveyors are built on steel trusses supported on four-wheel trucks. The trucks run on tracks placed at right angles to the length of the conveyors. The shovels advance by 35-foot cuts, and as a cut is completed the whole conveyor system is moved bodily along the tracks for a distance of 35 feet to a new position parallel to the old. Since it was put into operation the system has been dealing with an average of 40,000 cubic yards of overburden per month.

Coal Worked on Benches 45 Feet Wide

When the cut was opened to a sufficient size to permit the digging of the coal, the Bucyrus 150-B was put at this work, leaving the Bucyrus 175-B to continue with the stripping of the overburden. The plan of winning the coal is to work along benches parallel to the length of the area. The first cut was taken 75 feet deep and 100 feet wide along the northern side. Parallel cuts will be made on following benches 45 feet deeper. In order to reduce the moisture content of the coal, an extensive drainage system has been cut 160 feet below the surface. Shafts have been sunk, tunnels constructed and pumps installed. At present this system is dealing with about 10,000 gallons of water per day. An extensive surface drainage system has also been installed, smaller pumps being used to lift out the surface water.

Coal Transported by Dump Cars During Early Operations

At first, pending the time when the cut was of a size to permit the installation of the permanent coal-conveying machinery, the shovel

Lowering the crusher-loader down the "run in." The coal-loading shovel dumps direct into this hopper, which supplanted the system whereby the cars received the coal direct. The hopper, by use of a trip system, automatically loads the cars as they come in and also keeps count on the tonnage going out.

was served by cars of 1½-ton capacity. These were made up into three trains of eight or nine cars, and hauled by Hudsell Clark saddle tank locomotives, running on a loop track of 3-foot 6-inch gauge, laid on the original surface of the coal. The coal is taken to the southwest corner of the cut by the cars, where it is dumped into the hopper of a single roll Jeffrey-type crusher of 300 tons per hour capacity. The crusher feeds the coal onto a belt, which elevates it to an auto-

matic truck loader which loads into cable haul trucks running between the open cut and screening plant. This part of the conveying system is part of the permanent equipment.

The Present Coal Handling System

The cut was advanced to a suitable size for the installment of the permanent haulage system in the middle of 1925. At the same time a Ruston No. 250 electric shovel was put to work on the excavation of the coal. This machine works 24 hours per day, and excavates about 2,500 tons of coal each day.

The shovels load the coal into a traveling hopper-crusher, which breaks it into a convenient size and loads it into the trucks of an automatic cable haulage system. This hopper is a steel-framed structure mounted on four-wheel trucks, traveling along tracks by power supplied from a transfer gear shaft through chains. Underneath, it is equipped with automatic filler tubs which receive the coal as it comes out of the crusher, predetermining the amount of coal that each car is to receive. These tubs are automatically tripped as the cars come under. In this way uniform loads are assured, and also by an automatic counter a check can be kept on the amount of coal being excavated.

The haulage which receives the coal from the loaders and elevates it from the open cut to the screen house is made up of wooden trucks of 160 cubic feet capacity which run on 20-pound rail tracks. All operations of loading and emptying the trucks, of closing the truck's doors and of ungripping and regripping the rope, are performed automatically while the truck is traveling.

The Routing of the Coal Through the Plants

At the screening plant the coal is fed from the receiving hoppers to vibrating screens, which separate the coal of from ¼ inch to 2½ inches in size from the remainder of the product. The plant is situated over the railway sidings for shipping convenience. A direct haulage is supplied to take the coal direct from the screens to the power plant, the briquetting plant and to concrete storage bins. A direct haulage is also supplied to take the coal from the storage bins to the power plant, briquetting plants and railway cars on the sidings for shipment. The medium-sized coal goes into the hoppers of the power plant from the automatic haulage system, and the large and slack coal goes into the hoppers at the briquetting plant. Other automatic haulage systems will be installed as the scheme develops.

The Power Plant

The power plant is located between the open cut and the river, which gives it access to water supply for the condensers required by turbine operation, a weir having been constructed at a bend in the river to make a water reservoir. The power station consists of a boiler house with ash exhauster annex, feed annex, turbine room, control room, and switch-yard, together with an open coal storage area having a capacity of 30,000 tons. The coal store is located in line with the boiler house, and a system of telphers with grabs reclaims the coal from the store, and delivers it to the boiler house.

The boom stacker, the last section of the conveying system, is mounted on trucks running on a curved track. It is powered and controlled from the small house located underneath on the central supporting trusses.

The whole area of Yallourn is under the supervision of the Electricity Commission. Several subsidiary plants are working in conjunction with the coal-stripping operation and power station; the secondary projects are the brick works, the coal briquetting plant, the water system and the supervision of the township and its future growth.

The Brick Works

The brick works are located a short distance to the southeast of the town. From here, bricks are supplied for the general development of the area, including general township construction and all existing brick buildings in the territory. The manufacturing process used is known as the semi-dry. After leaving the pit, the clay is elevated to a loft, and fed to a Chilian mill, where it is crushed and ground. From the mill, it is again elevated, and mixed, and passed down a chute

direct to the brick-making machines. The bricks, after leaving the machines, are wheeled straight to the kilns, which are of the down-draught pattern, where they are steamed off and burnt with wood fuel. The works are also equipped for the manufacture of roofing tiles, which are made by the plastic process. Agricultural drain pipes, gutter bricks, tile ridging, and other accessories are also made at the works. The average output is 30,000 bricks per day and 15,000 tiles per week.

The Coal Briquetting Works

The briquetting works are located to the east of town, the object of which is to provide a more durable fuel of higher calorific value than the raw brown coal itself. The briquettes are 10 inches long and about 2½ inches deep, and 1½ inches to 2 inches thick, with the top and the bottom sides indented so as to break readily into two pieces for domestic use, and four pieces for industrial use. The initial plant is expected to produce about 350 tons per day and the final scheme about 3,500 tons.

The water supply system is designed to supply the whole area. The pumping plant is located at a bend of the river just above the quarry. There are two large reservoirs, each lined with thin reinforced concrete. Purification is carried out by the sedimentation process after the addition of aluminum sulphate. The township is served through 3-inch, 4-inch and 6-inch pipe, mostly of cast iron, while the power station and the briquetting factory are served by 8-inch, wood-stave and steel mains.

The town of Yallourn is growing with the rapid progress of the whole project. It is estimated that in the year 1928 there will be a population of 4000, and plans are all laid for the accommodation of this growth. At present about one-fourth of the estimated number of homes in 1928 are built and occupied. The homes are modern in every respect, including complete electric lighting system, sewer system, etc. The town is planned to concentrate all administrative and business activities around a central square. Sites are reserved in conspicuous and convenient positions for public buildings, churches, primary and secondary schools, recreation, etc. Roads and drains are constructed to keep pace with the expansion of the building program. The general office buildings are located but a short distance to the southwest of the power plant, and from here all local administrative and constructional details are controlled. Enough coal lies in the tremendous beds to last for hundreds of years, and the passing of time will see considerable development of this large project.

The first of the overburden being stripped off by the Bucyrus 175-B and Bucyrus 150-B shovels. Note the way the overburden conveyor is placed and how boom stacker piles up the spoil in the background.

Both Needed It

Unquestionably the man ahead was drunk, so the officer gave chase and after some manipulation he brought the reeling car to the curb.

"What do you mean by driving a car in this condition?" he demanded.

"'Sall right Ossifer," the boiled one replied. "I'm gonna haver overhauled soon's I get sober." — *Scoop.*

A Judicial Prophecy

It is said that once upon a time there was a justice of the peace who, after hearing the evidence in a case observed: "I will take four days in which to decide this case, but eventually I will decide the same in favor of the plaintiff."

He: "I am a little stiff from bowling."

She: "Bowling, where is Bowling?"

The Excavating Engineer

A Monthly Publication Devoted to Excavating and Allied Subjects

REGULAR SUBSCRIPTION: $1.00 a year for 12 numbers.
SPECIAL SUBSCRIPTION:
Upon application on card inserted in this number, subscriber's name will be placed on Rotating List, whereby he will receive The Excavating Engineer frequently (not regularly) free of charge.

THE EXCAVATING ENGINEER PUBLISHING CO.
F. O. WYSE, Manager-Editor
South Milwaukee, Wisconsin
Printed in the U. S. A.

The Business Outlook

A business weather map, published by "System" for the month of October, shows the country enjoying business activity either "above the average" or, in some cases, "average." The map, which is based upon the monthly analysis of answers to the question "how is business," from principal executives of highly rated concerns in all sections of the country, shows surprisingly few "below the average" localities.

Industrial conditions have carried on so favorably in the past two months that the outlook for the balance of the year is, almost without exception, one of confidence. Moreover, the list of industries which look forward to the future with optimism includes that devoted to construction. Building construction has showed a constant increase for the months of this year over the corresponding months of last year, and although August and September have run somewhat under the months before, the volume is still substantially above the corresponding period for 1925.

According to figures published by The F. W. Dodge Corporation, highway construction in 37 states for the month of September is substantially (a little more than 40 per cent) above September 1925, and only some 8 per cent below the figure for August.

A very definite indicator of business in general is the volume of bank checks drawn throughout the country. This is about 4 per cent greater for the month of September than for the corresponding period a year ago. Another indicator of activity in manufacturing industries is the consumption of electricity and this is some 15 per cent higher than a year ago.

The railroads have been having a very satisfactory period. They have been doing a tremendous volume of business, and the freight traffic for the first seven months of this year shows a net ton mileage of 286,806,835,000 — 7.4 per cent over the corresponding months for last year.

The net profits for the Class 1 roads for the seven months of the year aggregated nearly 612 million dollars, which is the largest on record during a similar period, and is at an actual rate of 5.9 per cent on the tentative valuation of the property as established by the Interstate Commerce Commission. The traffic has been so heavy that today there is a great possibility of car shortage in the crushed stone industry.

The agricultural situation is very fair. Cotton seems to be a weak spot, however. It is off as this is written to the lowest level in five years, but a crop somewhat smaller than formerly estimated by the government may correct conditions for next season. The corn crop was in decided danger of frost during the month of September. It is probable that this year will see a considerable amount of soft corn, but in view of the unusually large carryover the yield is likely to be sufficient for the country's needs. Potatoes, although still considerably below the five-year average, will probably make a larger crop than last year. The tobacco crop is somewhat smaller than last year but larger than the average.

Cattle prices reached a new high for the year late in September and the increase has been very fortunate for the cattle men. Hog receipts in the ten leading markets for the first eight months of the year were sixteen million against eighteen million in the corresponding months of last year, a decline of about 14 per cent. The prices were above the former rates, and although they may decline a little in the Fall marketings, no decided drop is expected.

Our foreign trade is daily on a better footing. It must not be forgotten that foreign trade is a two-sided "affair," and we should look with pleasure upon the fact that the European countries are cultivating our domestic markets. In other words, our imports are growing, and it is a healthy state of affairs for we cannot constantly ship our own products to other nations unless we in turn buy to some extent from them. Of a list of 28 manufactured articles each one shows a decided increase in exports for the fiscal year ending June 1926, over the corresponding period of 1921-22. A table published by the National City Company of New York showing the exports of manufactured articles (values in millions of dollars) is reproduced on the next page, and it is interesting to note that only one item, namely "tobacco manufactures," has shown a decrease in exports.

Money rates have stiffened quite a little during the month of September, apparently reflecting the money demands which come at this time, including both tax payments and harvesting funds. The Federal Reserve Banks have to date made no increase in their rates, although com-

mercial paper has been firm at 4½ to 4¾ and call money held steadily at 5 per cent. The New York Federal Reserve Bank advance mentioned in our last issue was followed by liquidation of about some forty millions from the reserve bank portfolios. The money situation seems to be firmer in New York than in other parts of the country.

The best stocks have shown a firm undertone and have made fair advances. Bonds show a slight decline from the year's high. Trading in bonds continues to drag, although the demand for new offerings during the month appears to be as keen as it was a few months ago. The bond market seems today to be one where the old issues show only a slight activity while the sale of new offerings is brisk.

Value in Millions of Dollars of Exported Manufactured Articles

	1921-1922	1924-1925	1925-1926	Percent increase in 1925-26 over 1921-1922
Leather	41.2	50.2	51.5	24.8
Leather manufactures	17.6	20.3	19.2	9.0
Rubber manufactures	31.0	43.6	58.8	89.6
Tobacco manufactures	23.5	20.3	18.4	—21.7
Cotton manufactures, including yarn	122.9	148.2	140.7	14.4
Silk manufactures	10.2	16.8	18.4	81.1
Lumber and related products	59.7	97.3	98.9	65.6
Wood manufactures, advanced	21.3	34.1	37.3	75.1
Paper and manufactures	20.5	23.0	25.8	26.0
Mineral oils, refined	304.2	392.5	462.9	52.1
Abrasives	2.7	6.3	6.9	155.9
Iron and Steel	179.4	204.4	235.6	31.3
Copper wire and cable	4.3	5.9	6.3	45.0
Electrical machinery and apparatus	57.1	66.9	80.7	41.3
Industrial machinery	141.4	155.6	179.7	27.1
Printing machinery	8.1	10.0	12.5	54.2
Typewriters	10.6	17.8	12.9	87.7
Cash registers, calculating	4.1	12.6	15.4	272.7
Agricultural machinery	20.3	62.7	90.0	342.8
Automobiles, parts and accessories	80.8	255.3	331.9	310.9
Motorcycles	3.1	4.5	5.2	68.2
Chemicals, etc	96.4	107.1	119.6	24.0
Photographic goods	17.6	18.0	18.4	4.2
Scientific and professional instruments	10.8	9.6	11.7	9.1
Toys, athletic and sporting goods	2.9	4.9	5.1	78.2
Firearms and ammunition	3.7	4.7	6.7	81.3
Books, pictures, printed matter	17.8	20.6	21.2	19.6
Musical instruments	7.5	12.7	14.2	89.5

· FIELD NOTES ·

Pulling Posts

When it is necessary to pull a post or a pole, where no special tools are available for that purpose, take a good strong bar or pole, say a wagon tongue, and secure it to the bottom of the post, near the ground, with a rope or chain, and put a block or fulcrum under the wagon tongue about a foot from the post. After the first pull on the lever slip the hitch down and pull again.

Sometimes it is necessary, especially in pulling poles, to attach two long levers in this manner, one or both for pulling, and one holding while a new hitch is taken with the other.

In the wet or marshy land punch a hole in the ground close to the post with a crowbar. This will let the air in, prevent a vacuum from forming at the bottom, and will make the job that much easier.

Oiling Bearings

Bearings should be oiled ten or fifteen minutes before quitting time, while the bearings are warm, and, therefore, in condition to take the oil freely.

Oil poured into cold bearings does not flow freely, and the bearing is more likely to run hot.

Short Moves in Rock

There is a tendency among some shovel men, when moving up, to make as long a move as possible. This may do very well in soft material, but in rock it is not a safe practice.

In order to make a long move he will dig until the dipper handle is at extreme reach, and then move up until the shovel is too close to the face of the bank; there is always danger of battering up the front end with the dipper.

Short moves give better results, if continued service and the life of the machine are to be considered.

Rubber Hose Fittings

Placing a nipple or a coupling in rubber hose is not always an easy task, especially if the hose is old and somewhat hardened.

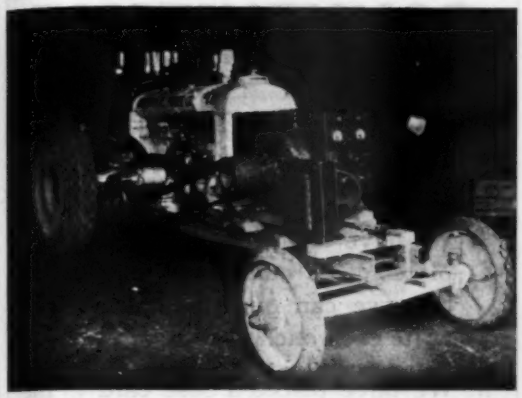
It is good practice to heat the fitting enough to soften the rubber, push the fitting in place quickly, and plunge into cold water.

The result is that the end of the hose is practically connected to the fitting, and almost impossible to remove without cutting.

DEVICES YOU OUGHT TO KNOW ABOUT

Gas Engine Driven Welders on Tractors

The *General Electric Company* has recently announced an electric arc welding equipment consisting of a generator which is designed to be attached to a tractor and to be driven from the



Welding Generator Mounted on Tractor Assembled by the Pontiac Tractor Co.

same gas engine which supplies motive power for the tractor. This generator supplies current for the welding electrodes. Information may be obtained from the *General Electric Company, Schenectady, New York.*

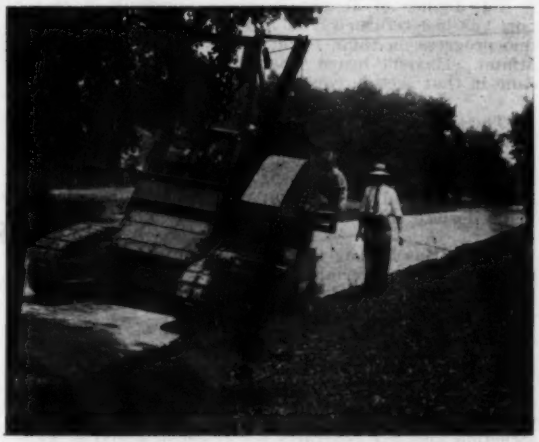
Four-Wheel Drive Auto Company Announces 1½-2 Ton Truck

The Four-Wheel Drive Auto Company, Clintonville, Wisconsin, has just placed on the market a 1½-2 ton four-wheel driven truck, to be known

as the Model H. This is not a replacement of an older model, but is an addition to the company's present line. It is being placed on the market after more than a year's development, the truck having been thoroughly tested in South America under severe operating conditions, as well as in the United States. The Model H is constructed along the same general lines as the company's standard Model B, but has the motor in front of the dash instead of under the seat. The Model H is built for general hauling, light road maintenance, snow removal work, and power line construction utility work.

New Barber-Greene 4-Inch Ditcher

This new Barber-Greene 4-inch Ditcher is cutting a trench for the Outdoor Lighting Company of Chicago at Elmhurst, Illinois. The trench



shown is 4 inches wide and 18 inches deep, and is to be used for electric conduit. The machine worked at the rate of 1,000 feet an hour several times and often produced 7,000 feet a day.

Reports indicate that dynamite is being increasingly used to blast out foundations where it is necessary to have the job done quickly and with economy. Experts are able to use the explosive in these cases without damage to the buildings or to surrounding valuable machinery. The method adopted is to drill the necessary holes in the proper places of the foundation and to use small amounts of dynamite. Sometimes a half of a stick is used, and some times a lesser amount, depending on the situation. The shot is very light; and, as a result, it has been found that the demolition work can go on even while nearby machinery is in action.

The cost of speed of the dynamite method has recommended it invariably to the owners and contractors, when once they have been assured that the explosive can be used without damage. Explosives experts can guarantee this; and, as a matter of fact, are doing an increasing amount of delicate work which, a few years ago, would have been thought to be impossible by the public.

SHOTS FROM THE · FIRING LINE ·

Central States Notes

Herman C. Haugk writes from Ada, Michigan, that he is running an Osgood 18 for E. G. Scharl at Grand Rapids, Michigan, and expects to be there all winter.

Iowa Notes

BY H. C. EMERY

George Condon of Omaha was the successful bidder on 13 miles of road work let at Sidney, Iowa, September 15. The job entails approximately 380,000 yards, and the contract price is reported as being 17 cents per yard.

The Miller Construction Company of Burlington, Iowa, has experienced considerable delay on their contract near Mount Pleasant due to excessive rains. In fact, every grading and paving job in the state of Iowa has been extremely handicapped by the wet weather.

Ed. Jenner of Jenner Brothers Company of Davenport has just returned from a trip to Florida. He reports fine progress on their Dixie Highway contract south of Miami. Haven't heard what damage the recent hurricane in that section caused to their outfit.

The Priester Construction Company of Davenport, Iowa, who has one of the larger contracts for the construction of the new cement plant for the Dewey Portland Cement Company near Buffalo, Iowa, has been hampered by bad weather, but very good progress is being made despite the delays.

Frank Busche has the contract for the basement excavation and material hauling on the new Orpheum theater at 15th and Harnay Streets, Omaha.

New England Notes

BY R. W. CONANT

The last sizable letting of New York State Highway contracts for this season will take place at Albany on October 29, 1926. Bids for ten contracts for new construction and five contracts for re-construction of existing roads, involving a total mileage of approximately 68 miles, will be opened on this date. While these contracts will be awarded shortly after this opening, it is doubtful if much of the work will be started until spring.

Frank E. Winsor of Boston has been appointed chief engineer in the construction of the new Metropolitan water supply from the Ware and Swift Rivers.

The C. and R. Construction Co. have been awarded a section of the Dorchester tunnel extension in Boston. Crain and Driscoll have been subletting the excavation.

The Sanders Engineering Co. have been awarded the Chicopee waterworks job.

Dwight P. Robins, Inc., is making good progress on the Boston & Maine freight yard enlargement in East Somerville.

Earle and Merry of Rutland, Vermont, are having a busy season.

Joseph Tomarello of A. G. Tomarello & Son is laid up with an injured ankle. We trust he will be around and about soon. The firm's section of the new Dorchester tunnel is being pushed along rapidly.

FOR YOUR CONVENIENCE

1. We have compiled a list of manufacturers of equipment used in the field of excavation.
2. We have arranged this list on the plates of an addressing machine so that we can quickly and cheaply write each one.
3. We have placed a post card in the center of this magazine for you to check and return to us.

If you are interested in equipment

We will ask each manufacturer on the list checked to send you his catalog — or — we will send you the list with addresses, on letter head.

Just return the card

(the one with the border in the center of the book)

The Excavating Engineer Publishing Co.

South Milwaukee, Wis.

SHOTS FROM THE FIRING LINE — Cont.

Trissell and Snyder, contractors from Gardner, Massachusetts, have about completed their paving job near Burlington, Vermont. The writer will testify as to its smoothness.

Vogel & Hadley of Manchester, New Hampshire, have two Eries on the hydro-electric project at Hillsboro, New Hampshire.

The fact that the three-mile cut-off at York Beach, Maine, is completed won't displease travelers going to Portland. McCabe and Giovanninni are getting along on their stretch and hope to finish this month.

J. C. Coleman & Sons Co. have about finished the excavation for the new junior high school in Roxbury.

Joe Perini of Ashland sure likes his B-Z Erie. Pat Holland of Lawrence has an even more exalted opinion of his new Bucyrus 31-B. A debate between the two would prove interesting.

M. F. Roach of East Bridgewater, Massachusetts, has a lot of work, with two five-mile stretches to do before winter sets in.

The Boston & Maine plans a big freight classification yard in White River Junction, Vermont.

The Daniel Webster Highway from Boston to the White Mountains is in excellent shape, thanks to the highway departments of Massachusetts and New Hampshire. A more beautiful stretch of road would be extremely hard to find anywhere in the United States.

T. J. Quin & Son of Ashland refuses to let anything in their neck of the woods get away from them. Hence the Bellingham job is now under way under their direction.

News Around New York

BY T. A. BURNS

There are several superintendents on subway work very much concerned about the health of a well-known salesman of air drills. He hasn't shown up along the line since before the baseball series.

Clyde Burley has come to town to stay, having located in Astoria. A great many "up-staters" will no doubt spend the holidays in New York.

Mr. Arthur T. Sackett, vice-president of the Silas Mason Company, agrees with us that transportation facilities in Jerusalem two thousand years ago must have been far better than ours in New York at the present day, regardless of the partial completion of new subways. He agrees that if Balaam did what he is said to have done, it is more than he (Mr. Sackett) has been able to do in New York during his residence here.

"Billy" Severn is helping Louis Diener go to Florida with the other poker players this year.

Jim McClain has now moved into New York, and is prepared to handle any size excavating contract in this vicinity.

These prints were sent to us by J. J. Ziegenhagel, 908 East 176th Street, Bronx, New York, who is running a Bucyrus 20-B shovel for Arthur Armstrong, Inc., Grand Central Terminal, New York City. Apparently from the

What Brought Mike's Smile?

A QUARRY, cars, locomotives, track, many workmen, an immense shovel growling, grunting and biting its way into a mountain of rock — two men standing at one side, deep in conversation. Harry was a visitor, Mike was the quarry superintendent.

"Mike, that shovel is tearing into things but you don't seem so cheerful today. What seems to be the trouble?"

"Harry, she digs right along but there is something wrong with the friction blocks, and I just bought new ones four weeks ago. One day they slip, the next they stick. Yesterday it was hot and they expanded so we had to stop and adjust the brakes. Just then they grabbed and jerked like sin. They absorb oil like the dickens, too. I've bought several sets of blocks since we've been here and I don't understand it. Seems as though most any kind of a block should do."

"Your last words gave you away, Mike. Most any block won't do. There is your whole trouble. Did you ever try ASBESGRAPHITE moulded blocks? No? Get some and your troubles are over."

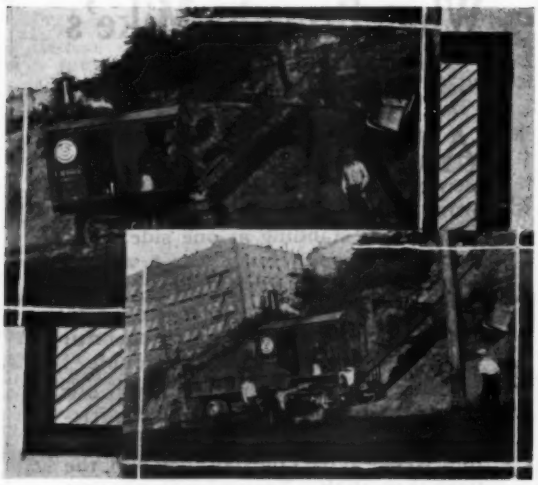
Mike bought ASBESGRAPHITE blocks next time, and hasn't had a bit of trouble since. You should see the smile on his face now. He also uses Gatke's EKTAG folded and compressed asbestos brake lining. It's better. Write —

THOMAS L. GATKE
Manufacturer
Railway Exchange Bldg.
Phone Harrison 3268
CHICAGO, ILLINOIS

WE CARRY A STOCK OF ALL SIZES FOR URGENT REQUIREMENTS

In writing to Thomas L. Gatke please use post card bound in the center of this number.

SHOTS FROM THE FIRING LINE — Cont.



upper view they heap the truck loads high in the Bronx. Ziegenhagel writes that the man on the running board, sitting in the upturned peach basket, is fireman Marty Foley.

Pacific Coast Notes

BY P. H. BIRCKHEAD

Contract awarded to A. E. Hennessey, General Construction Co., Sharon Building, San Francisco, who bid $398,456 for improvement of streets in Golden Gate Heights, Sunset District, involving concrete walls, stairways, grading, etc.

The Merced Irrigation District, Merced, is planning the following improvements for the coming year, to be included in budget, to cost about $250,000: Construction of new canals to cost about $82,194; improvements to canals to cost $70,000, including $40,000 for concrete lining; maintenance and repair of canals and structures, $41,900; drainage program for drainage wells to cost $5,100; maintenance and repairs of canals and structures $41,900; repair and maintenance of drainage to cost $6,800.

Jack Pendergast writes from Klamath Falls, Oregon, care of L. R. Wattis Company, that he is pulling the levers on a Bucyrus 50-B shovel on the new yards for the Southern Pacific. He has eight trains of twelve 4-yard cars hauling away the dirt, and writes that he can keep them stepping right along.

Contract awarded to Fred C. Franks Contracting Co., 260 California Street, San Francisco, who bid $0.1674 for dredging 789,200 cubic yards in Cerritos Channel, fronting site of Ford Company plant on Badger Street, Long Beach, for City of Long Beach, Los Angeles County.

Contract awarded to the Utah Construction Co., Phelan Building, San Francisco, and Ogden, Utah, who bid $1,566,240 for the construction of the Gibson Dam, 175 feet high, concrete massive arched type, to be a unit of the Sun River Project, for the United States Reclamation Service, Fairfield, Montana.

Boiler Details

In our boilers, Firedoors and Liners, Manhole and Handhole Plates and Yokes are all of STEEL.

Safe, unbreakable and easily handled.

Such details are essential in boilers of highest quality.

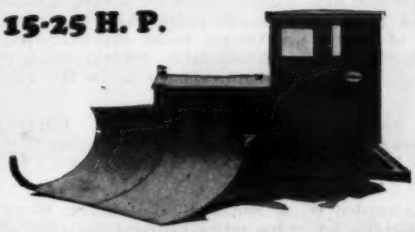
JOHNSTON BROS., Inc.

Specializing in Boilers for Contractors' Equipment

FERRYSBURG, MICHIGAN

In writing to Johnston Bros., Inc. please use post card bound in the center of this number.

Model K,
15-25 H. P.



Snow Time and Cletrac

WHEN the drifts pile high on the highways and King Winter threatens to stop transportation between towns and villages — ACTION IS NEEDED QUICKLY. Power at these times is at a premium. It must get to the scene of action under terrific handicaps — and once there it must perform heroic tasks.

There is only one type of tractor that is dependable under these conditions—a CRAWLER tractor. Either of the two Cletrac models shown here will wade through the heaviest drifts and over ice and snow. They push a ten-foot snow plow or pull a stalled ten-ton truck with equal ease. Cletrac is without question the one, surely reliable tractor for *all* the year 'round.

Model K, 15-25 H. P.

A heavy-duty, sturdy 4-cylinder crawler tractor with an amazing reserve power. An ideal unit for snow removal as well as all the other jobs of highway building and maintenance. Equipped with Cletrac's famous "Snap" lubrication for instant oiling. Furnished, when desired, with enclosed cab for use in winter.

Model A, 30-45 H. P.

A revelation of power and smoothness in a tractor of this rating. Handles the very biggest jobs of construction, maintenance, and hauling. Big 6-cylinder motor gives remarkable acceleration and easy power flow. Only four points outside the motor require oiling by hand. All other points instantly lubricated by push of a plunger.

The Cleveland Tractor Company
Cleveland, Ohio

Model A,
30-45 H. P.

Mail the coupon or write us today for information and illustrated literature on Cletracs for snow removal.

The Cleveland Tractor Co., Cleveland, Ohio.
Please send me full information regarding
☐ Model K Cletrac ☐ Model A Cletrac
and your illustrated "Snow Removal" folder.
Name _____
Address _____

Mail the COUPON

In writing to The Cleveland Tractor Co. please use post card bound in the center of this number.

SHOTS FROM THE FIRING LINE — Cont.

Plans and specifications have been completed by Consulting Engineer Francis Betts Smith, 58 Sutter Street, San Francisco, and bids will be called for shortly by the City of Santa Barbara, Santa Barbara County, for the construction of riprap breakwater to be approximately 1200 feet long. $400,000 is available for the project. E. A. Rolison, City Hall, Santa Barbara, is the city manager.

Contract awarded to Mercer-Fraser Co., Eureka, $5007 for laying street car track on Myrtle Avenue, from 7th Street to Harrison Avenue, for City of Eureka, California.

Contract awarded W. A. Smith, West Building, Houston, Texas, $50,362 for three miles railroad for City of Houston.

Pennsylvania Notes

BY T. H. BARRETT

H. J. Stannard advises that his dredge is completed, and is digging in the West Branch of the Susquehanna River. The other operation of the West Branch Sand Co. is a big sand pump near Williamsport. They report a good demand for sand.

Bush and Stewart have a mile and a half road job for the city of Williamsport and expect to complete it this fall.

Heavy rains have curtailed the stripping near Hazleton, Pennsylvania, so that the yardage output will be about half of the record in July. Demand for anthracite is brisk and it is expected that the winter of 1926-7 will be a prosperous one for the hard coal business. Most available banks are being run through washeries to swell the month's production.

JERSEY TO SPEND MILLION AT TUNNEL IN NEWARK

Additional Expenditure for Approach to Hudson Tube Is Authorized

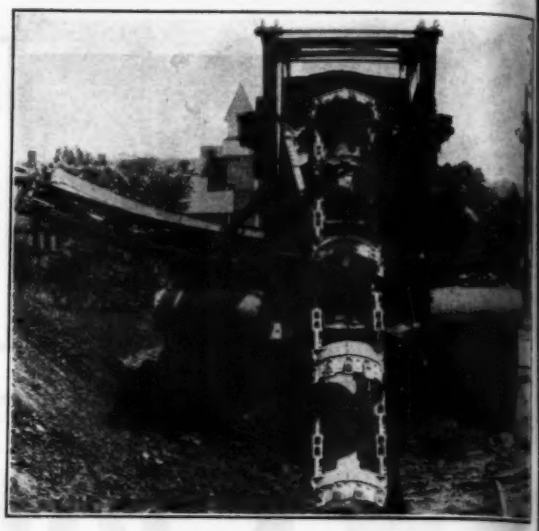
An additional expenditure of more than $1,000,000 for construction of a part of the approach to the Hudson River Vehicular Tunnel in the City of Newark was authorized by the State Highway Commission yesterday.

Bids for the two additional sections will be received on November 1. The new work will include a steel bridge 240 feet long over the Central Railroad at Brills Junction, and a viaduct of concrete and steel, 2100 feet long.

The Union Paving Company, Philadelphia, was awarded the contract for additional work on three miles of the Delaware River Bridge entrance and connecting road for $248,423. The contract covers the placing of concrete on parts of the road already graded in Camden and the placing of gravel on other sections in Pensauken Township and Collingswood.

The Lehigh Valley Coal Co. is proving for coal at the southern end of Freeland, Pennsylvania, opposite the Tiger's baseball park, near the tract where the Washington Silk Co. will erect its new mill.

The work of stripping the land between Coleraine and Tresckow in Carbon County for coal, is a tremendous task, and will take all of eight years. This is one of the richest beds of anthracite in the anthracite region.



Buy *Profitable* Performance

Men who use Trench Excavators rightly expect and demand that they shall give dependable service continuously — in all kinds of soil, in all sorts of weather, under every reasonable condition.

Such service, to be *obtained from* an excavator, must be *built into it.*

You buy profitable performance in Buckeye Trenching machines. When machine-cut trench was in its infancy, Buckeye began to acquire an enviable reputation for honest workmanship and honest products that men could put faith in.

Today, Buckeyes have thirty-two years of successful operation behind them. That's why they are usually the first choice of men whose ability to judge values has been acquired by practical experience.

The Buckeye Traction Ditcher Co.

Manufacturers of Trench Excavators (both Wheel and Chain-and-Bucket Types), Pipe-Line Trench Excavators, Tile and Open Ditchers, Back-Fillers, Pipe Screwing Machines, Curb Diggers and Clay Diggers.

Findlay, Ohio

There's a Buckeye Sales and Service Office Near You

BUILDERS OF TRENCH EXCAVATORS FOR OVER 30 YEARS

GUIDES HELPED HIM MAKE BIG MONEY

"I would advise every machinist to make good use of Audel's Engineers and

GUIDES ARE A MONEY MAKING OPPORTUNITY

"Audel's Engineers and Mechanics Guides proved to be my best investment

GUIDES ARE A MONEY MAKING OPPORTUNITY

"Audel's Engineers and Mechanics Guides proved to be my best investment and money-making opportunity. By reading and referring to these books, I advanced from laborer at $22.00 a week to mechanic at $38.50. In another two years of reading I was able to pass rigid examinations for a license, and now have my own profitable business."

E. J. Philopy, Dighton, Mich.

GUIDES HELPED HIM MAKE BIG MONEY

"I would advise every machinist to make good use of Audel's Engineers and Mechanics Guides. I bought a set, and by reading them advanced myself to full charge of a machine shop and am making big money now."

J. J. Gavura, Johnstown, Pa.

AUDELS ENGINEERS & MECHANICS GUIDES

EXAMINE FREE!

$12 Complete Set 8 Guides

EASY TERMS

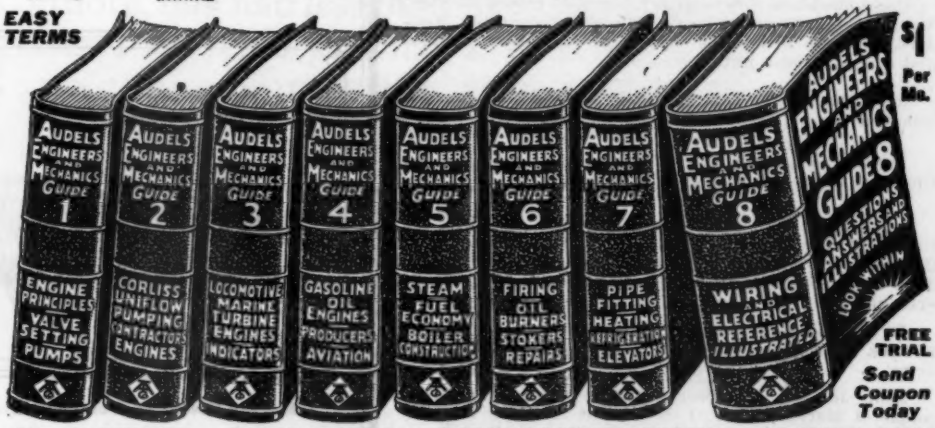
For Every

Engineer Machinist Fireman; Oiler
Mechanic Electrician Engineer Student

THIS Master Set is a gold mine of daily, practical helps for workers in every branch of engineering. A self-educating study course for the student; the standard reference work for the chief. Thousands of rules, tables, calculations and diagrams make it easy to read and learn. Latest inside information on theory and practice of modern engineering for reference study and review. Thousands of new short-cuts that make the job easier. Examine free! Pay $1 a month (less than 4c a day) if satisfied that this set will help you to a better job—or make your present job easier.

AUDELS STANDARD LIBRARY

With Questions and Answers That Solve Your Problems


AUDELS ENGINEERS AND MECHANICS GUIDE 1
ENGINE PRINCIPLES VALVE SETTING PUMPS
AUDELS ENGINEERS AND MECHANICS GUIDE 2
CORLISS UNIFLOW PUMPING CONTRACTORS ENGINES
AUDELS ENGINEERS AND MECHANICS GUIDE 3
LOCOMOTIVE MARINE TURBINE ENGINES INDICATORS
AUDELS ENGINEERS AND MECHANICS GUIDE 4
GASOLINE OIL ENGINES PRODUCERS AVIATION
AUDELS ENGINEERS AND MECHANICS GUIDE 5
STEAM FUEL ECONOMY BOILER CONSTRUCTION
AUDELS ENGINEERS AND MECHANICS GUIDE 6
FIRING OIL BURNERS STOKERS REPAIRS
AUDELS ENGINEERS AND MECHANICS GUIDE 7
PIPE FITTING HEATING REFRIGERATION ELEVATORS
AUDELS ENGINEERS AND MECHANICS GUIDE 8
WIRING AND ELECTRICAL REFERENCE ILLUSTRATED
AUDELS ENGINEERS AND MECHANICS GUIDE 8
QUESTIONS ANSWERS AND ILLUSTRATIONS
LOOK WITHIN

$1 Per Mo.

FREE TRIAL

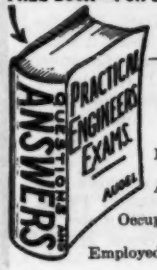
Send Coupon Today

8 GUIDES—8754 PAGES—4750 ILLUSTRATIONS—POCKET SIZE

8 pocket numbers with Ready Reference Index. 8754 pages. 4750 illustrations. Easy to read. Highly endorsed. A good help in securing Engineer's License. Price $12; terms, $1 per month. Free Trial.

INFORMATION: — ***In A Handy Form.*** Answers to Your Questions and Problems. Here is a partial list of the subjects covered:— **Engine Principles, Valve Setting, Pumps, Corliss Engines, Uniflow Engines, Pumping Engines, Contractors Engines, Locomotives, Marine Engines, Turbine Engines, Gas Engines, Oil Engines, Indicators, Producers, Aviation, Steam, Fuel Economy, Boiler Construction, Firing, Oil Burners, Stokers, Boiler Repairs, Pipe Fitting, Heating, Refrigeration, Elevators, Dynamos, Motors, Lighting, Wiring, Electrical Diagrams, Radio, Electrical Reference and Calculations.**

FREE BOOK—FOR LIMITED TIME. While the edition lasts, "Audel's Answers" will be included with each set of Audel's Guides. Contains special information for those who want to go before the board to get a license. Makes Engineers exams easy. Send this coupon at once.



THEO. AUDEL & CO., 65 West 23rd St., New York City.

Send me AUDELS ENGINEERS AND MECHANICS GUIDES, 8 numbers, $12 and "Audels Answers" for free examination. If satisfactory, I will send you $1 in 7 days, then $1 monthly until $12 is paid.

Name .....

Address .....

Occupation .....

Employed by 11 T230

In writing to Theo. Audel & Co. please use post card bound in the center of this number.

SHOTS FROM THE FIRING LINE — Cont.

With the coming of the new cement plant of the Keystone Portland Cement Company which will soon start erecting a $2,000,000 cement plant, the residents of Bath are agog over the new enterprise. In addition to the new industry a new silk mill is being projected by interests from Paterson, New Jersey, who have purchased a site on West Main Street. If erected as planned the new mill will employ several hundred hands.

The Cranberry Creek Coal Co., Hazleton, Pennsylvania, announces that work will be started in two weeks on construction of a new highway a mile in length across its property to take the place of that section of the Hazleton-Shenandoah highway. Big coal veins underly the present pike and the whole area will be stripped. The company contracts to restore the original road after the anthracite beds have been mined three years hence.

The Dick Construction Co. has started to work a night shift at the No. 5 stripping at Upper Lehigh, Pennsylvania.

Philadelphia and Vicinity

BY H. C. DAVIS

The Hock Contracting Co. is very active in and around Allentown, Pennsylvania, at present. Frank Farber, James Farber, and Hiram G. Helfrich are running Keystones, and Alvin Henritzy is running a Marion No. 21, with Sam Helvrick shoveling the coal. In addition to these machines this company has just rented another Marion No. 21 from Richards & Gaston, Somerville, New Jersey. Steve Fedorik is the operator on this machine, and Chase Strause is the fireman.

Jack Warrick is running an Erie for H. Denburger Construction Co., Bethlehem, Pennsylvania.

Mike Riley is operating an Erie gas and air for F. H. Clements & Co., Bethlehem, Pennsylvania.

L. H. Petty is running a Beyers Bear Cat for W. T. S. Crichfield, Jersey City. He is putting in a sewer about 25 feet deep and 5 feet wide outside measurements. This work is being done on Front Street, Easton, Pennsylvania.

D. J. Trainor is running an Erie for N. H. Garman & Bros. of Reading, Pennsylvania. George Johnson is firing.

John Johnson and Morris Kennedy are running a couple of Marion Model 31 shovels for the John T. Dyer Quarries Co. at Birdsboro, Pennsylvania. Each of these men have been on this job for over 10 years. L. T. Carson is the superintendent and Ed. Hann is the master mechanic.

Chas. Kessler is running a Bucyrus 70-C for the Rhodes Construction Co. at Mt. Carmel, Pennsylvania. John McIntyre is running a Marion 70 for the same company. About three miles from there Mike Potochney is running a Marion 60. Leslie Hughes is craning for Mike and Geo. Potchney is firing. Pat Mack is foreman. All these shovels are stripping.

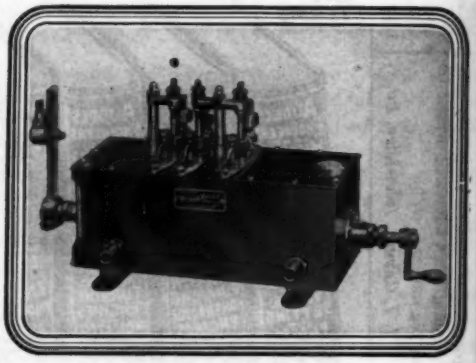
Geo. Rauch of Northumberland, Pennsylvania, is running an Erie for G. W. Rockwell, Semburg, Pennsylvania. Chas. Cooper is firing and Harry Trimmer is in the pit. Harry ran a Bucyrus wrecking crane at one time.

A McCord Force Feed Lubricator Will Keep Your Shovel on the Job

A McCord force feed lubricator installed on your steam shovel now will insure more continuous operation. Dependable force feed lubrication prevents shutdowns and delays, it gives more hours on the job.

McCord force feed lubricators are used as standard equipment by the largest and best-known steam shovel builders and they will be installed on any shovel at your request.

Put a McCord lubricator on now and be assured of dependable lubrication for the life of your shovel.



McCord Class B. A. Force Feed Lubricator

McCord Radiator & Mfg. Co.
Detroit, Michigan

McCord
force feed
Lubricators

GMC Big Brute, with dump body, in the service of Lein & Hansen, Le Grande, Ore.

Without uneconomical overpowering or sacrifice of speed, the GMC 53 horse power engine and the famous GMC 2-range transmission provide a tremendous reserve power which makes Big Brute ideal for heavy hauling.

Low Cost of Replacement Parts and Unusual Accessibility

Keep GMC Maintenance Costs Low

Many a GMC Truck, 5 years old and more, has had *less than $10 a year spent on it for replacements.* This is not due to chance but is the direct result of General Motors efforts to simplify and make quickly accessible all the parts that are subject to wear.

Every wearing part of a GMC Truck is so designed as to assure *a minimum cost of replacement.* Most parts subject to wear can be immediately replaced from stock. Many of them, such as engine bearings, steering gear parts, etc., are interchangeable:

While such GMC features as detachable cylinder heads, removable cylinder walls and removable valve lifter assembly make the replacing of worn parts a quick and easy job and *reduce labor costs and time-out-for-repairs to a minimum.*

GMC TRUCKS — PRODUCT OF GENERAL MOTORS

Sold and Serviced Everywhere by Branches, Distributors and Dealers of

GENERAL MOTORS TRUCK COMPANY

5800-6600 W. Dickens Ave., Chicago, Ill.

A DIVISION OF YELLOW TRUCK AND COACH MANUFACTURING COMPANY

GMC 1, 1½ and 2½ ton trucks
GMC Big Brute 4 to 15 ton Tractor Trucks
Yellow Cabs
Yellow Coaches
GMC Big Brute 3½ and 5 ton trucks
Yellow-Knight Delivery Trucks
Herts Drivurself Cars

Ge GMT Co.—1926

SHOTS FROM THE FIRING LINE — Cont.

The Duquesne Slag Products Co. have a Bucyrus 70-C at work on the slag dump at Pottstown, Pennsylvania. The crew is as follows: O. B. Johnson, runner; John Cirula, craneman; Nick Farri, fireman; Joe Small and Tom Harco, pitmen. This shovel looks remarkably well for the work it has done. A great deal of credit is due Mr. Johnson for the manner in which he has taken care of the machine. Mr. J. W. Fadler is the superintendent in charge.

Benton Reichenback is pulling the levers on an Erie belonging to Fred Kumer of Shamokin, who is putting in new pavement on Wolverton Street, Sunbury, Pennsylvania. Frank Mann is firing.

Southern States Notes

BY W. W. WHORLEY

W. J. Roland, who has been loading slag for the Birmingham Slag Company, was a recent caller at our office.

The many friends of Fred Busby will be shocked to learn of his accidental death at the plant of the Atlas Portland Cement Company at Leeds, Alabama, due to an explosion in the quarry. Mr. Busby was well known in this district and leaves a wide circle of acquaintances.

E. Williams, who is superintendent of the Brownwood Rock Crusher at Brownwood, Texas, reports that they are loading about 1400 cubic yards of rock per shift with a Bucyrus 78-C shovel on caterpillars. The following crew is on this shovel: George King, operator; Frank Fitch, craneman; Elmer Groves, fireman.

H. P. Bruce writes that he is loading brown ore with a Marion 31 for Shook & Fletcher at Taits Gap, Alabama.

Harry Jones is handling an Erie for the Birmingham Excavating Company at Ensley, Alabama.

A. S. Dickson writes that he is still loading gravel with a Class-24 for the Roquemore Gravel Co., at Montgomery.

A. K. Sides, who is back from a spell in Central America, is operating a Bucyrus 50-B dragline at McCullough, Alabama.

Sam M. Spooner, who has been with H. L. Clark & Sons of Miami, called at this office and told us a remarkable escape from injury by the tropical storm which devastated that section. Both Mr. Spooner and his wife escaped personal injury by taking refuge in a sedan automobile which was driven to a protected point to avoid the intensity of the storm. Their home and most of their belongings were destroyed.

Mr. John Hawkins is superintendent in charge of coal-stripping operations for the Pratt Fuel Corporation at Jagger, Alabama. A Bucyrus 175-B is handling the overburden. Walter Self is operating the big shovel, assisted by Vester Self, craneman. Joe Holt is loading coal with an Erie whirley.

A. V. Lisenbee is loading rock for the Tallassee Power Company at Santeelah, North Carolina, with a Bucyrus 120-B electric shovel.

SCHRAMM, INC.
SHOWING SEVERAL OF THE TEN "SCHRAMM" 100 CU. FT. TRACTOR DRIVEN COMPRESSORS OWNED BY THE PENNA. STATE HIGHWAY DEPARTMENT. ON ROAD WORK.
THESE OUTFITS HAVE BEEN WORKING CONSISTENTLY FOR TWENTY-EIGHT MONTHS DURING WHICH PERIOD THE STATE HIGHWAY DEPARTMENT SPENT ONLY $22.65 FOR REPAIRS.

SCHRAMM, Inc., Manufacturers, West Chester, Pa.

SCHRAMM, Inc. *Offices and Representatives in all Principal Cities*

In writing to Schramm, Inc. please use post card bound in the center of this number.

Darkness Means Nothing to Kohler-Lighted Equipment

IT'S mighty hard to get a full day's work out of equipment and crew these short autumn days *unless* you have an efficient, reliable electric plant like the Kohler Automatic to floodlight your operations.

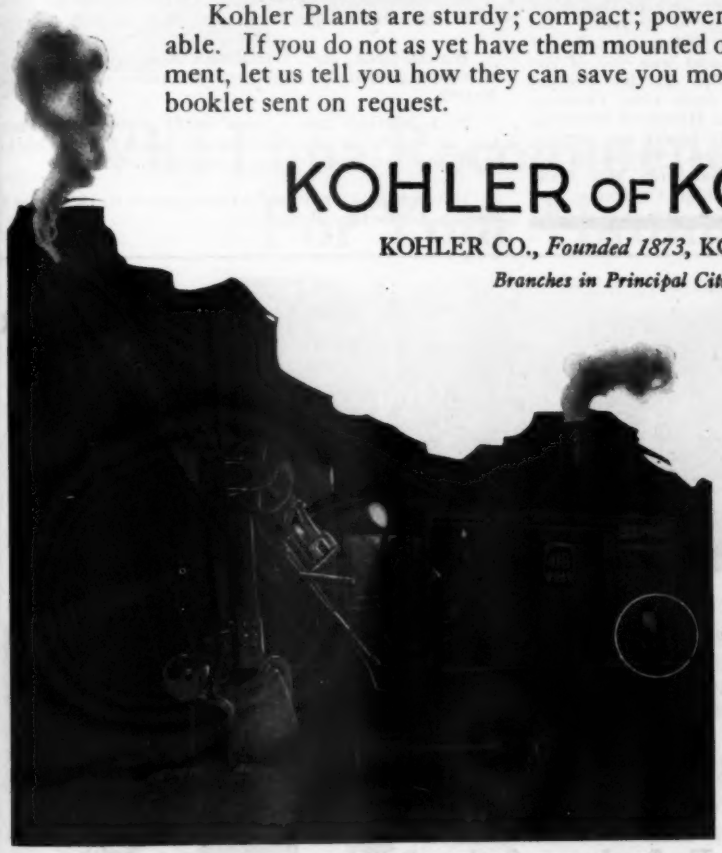
With it work can be started before dawn and continue far into the night, if need be, to meet completion dates. The brilliant electric light which electricity from the Kohler Plant supplies, makes the darkest night as bright as day.

Kohler Plants are sturdy; compact; powerful; and reliable. If you do not as yet have them mounted on your equipment, let us tell you how they can save you money. 36-page booklet sent on request.

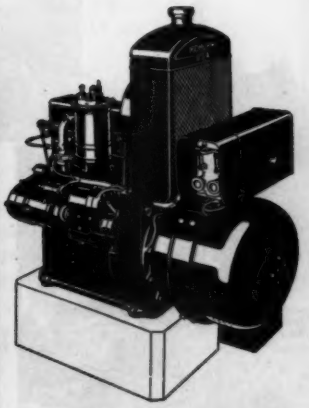
KOHLER OF KOHLER

KOHLER CO., *Founded 1873*, KOHLER, Wis.

Branches in Principal Cities.



Bucyrus Shovel Excavating at Night. Light Furnished by Kohler Electric Plant, Model E.



KOHLER Automatic Electric Plant

Model "D"-1500 Watts-110 Volts

In writing to Kohler Company please use post card bound in the center of this number.

SHOTS FROM THE FIRING LINE — Cont.

St. Louis Items

BY A. B. KOENIG

Casey Construction Co. were awarded contract for bridge on Route 25, Section 222, Douglas County, Illinois.

Cameron, Joyce & Co. were awarded grading highway on Route 2, Section D-1, La Salle County, Illinois.

Duncan Construction Co. were awarded contract for grading highway, Route 2, Section D-2, La Salle County, Illinois.

The Edwardsville Construction Co. were awarded contract for half mile of paving which will connect Highway No. 4 with Staunton, Illinois.

The Schevenell Construction Co. on a bid of $88,254.50 are low on paving streets of Covington, Tennessee.

L. J. Smith, one more of the good old-time contractors, has passed away. He died September 24th at the Hotel Densmore in Kansas City at the age of 69 years. He was a pioneer railroad builder. He laid many miles of track in the West and Southwest, and was one of the best known and beloved contractors in the Central States. In recent years he had a farm near Pleasant Hill, Missouri, and was interested in Hereford breeding. He sold his herd about a year ago, ill health not permitting him giving attention to the farm. He leaves his widow, Mrs. Irene J. Smith, and a daughter, Mrs. Scott Mitchell, wife of Scott Mitchell, Boulder, Colorado.

James F. Robinson of Miami, Oklahoma, was granted a permit for a $24,000,000, 274,000 horse power dam and power project on the Grand River in Oklahoma. The permit was granted conditional upon one-fifth of the project being completed within 2½ years. The statutory time for the completion of the entire project is 5 years.

Contract for the construction of 21 miles of railroad necessary to get the Jackson & Eastern Railroad from Union into Jackson, Mississippi, was awarded to the S. K. Jones Construction Co. of Memphis, Tennessee.

C. F. Bower resigned as general superintendent of the Woods Bros. Construction Co. and is now associated with the Bilhorn Construction Co. of St. Louis.

Pete Hannan of the P. J. Hannan Co., Boatmans Bank Building, St. Louis, reports good steam shovel and concrete outfits idle that they can place on work immediately.

E. A. Gould has his outfit at work stripping a quarry for the J. P. White Stone Co. near St. Charles, Missouri.

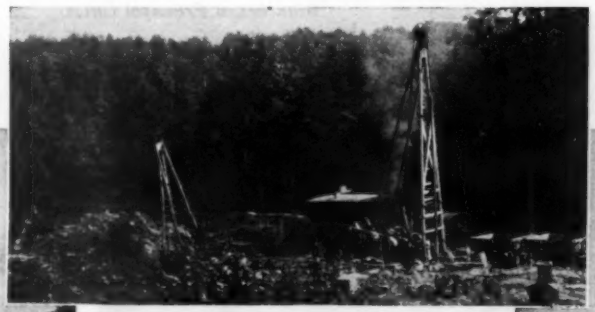
Jim Soderstrum is with the List Construction Co. on their Missouri-Pacific work near New Haven, Missouri.

Waugh Bros., Inc., report two good shovel outfits idle at Simpson, Illinois, that they can place on work immediately.

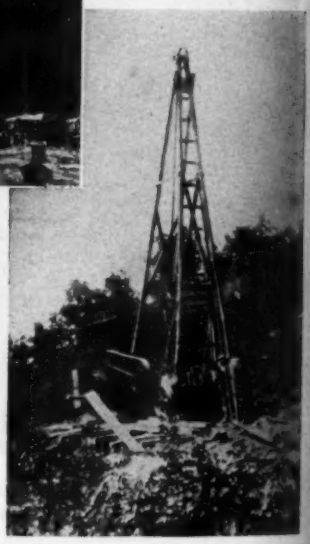
P. J. Murphy has a team outfit at work at Thompson, Missouri, on the Wabash Railroad, and a machine outfit on road work near Paris, Missouri.

Maloy & Fowler finished their shovel work on the Soo line at Janesville, Wisconsin.

CYCLONE DRILLS



—on the S. I. and K. R. R. job.



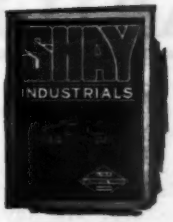
THERE was a great deal of heavy rock work on the Southern Illinois and Kentucky Railroad job. Twenty-three blast hole drills of the well driller type were used by the several contractors. Twenty-one of these twenty-three were Cyclone Drills. The machines shown belong to A. Guthrie & Co., Inc.

Our book *"Big Blast Hole Drills"* (120 pages) is of interest to anyone interested in heavy rock excavation. Ask for a copy.

The Sanderson-Cyclone Drill Co.
Orrville, Ohio
Eastern and Export Office: 30 Church St., New York

In writing to The Sanderson-Cyclone Drill Co. please use post card bound in the center of this number.

Why Lima Recommends Shays For Your Hauling



The Shay Industrial Catalog will tell you what Shays are doing under conditions similar to yours. Write for a copy

LIMA Locomotive Works, Incorporated, is one of the largest builders of rod locomotives. Those designs of direct connected locomotives, conceded to be the most modern and improved, are Lima productions.

But for the stone hauling job, Lima knows that rod locomotives are not as suitable as Shay Geared Locomotives.

So Lima recommends Shays for your work, because a half-century of experience has proven their unusual construction more adaptable to stone transportation.

Purchasing a Shay is assurance that locomotive performance will be unusually dependable, and that transportation costs will be only very minimum. Ask any Shay owner.

LIMA LOCOMOTIVE WORKS
Incorporated
Lima, Ohio 17 East 42nd St., New York

LIMA
***Shay Geared* LOCOMOTIVES**

In writing to Lima Locomotive Works, Inc. please use post card bound in the center of this number.

SHOTS FROM THE FIRING LINE — Cont.

The Walsh Construction Co., Davenport, Iowa, were awarded approximately 700,000 yards of work on the Pennsylvania Railroad cut-off near Collinsville, Illinois. At this writing they have sublet 275,000 yards on Section 2 to Chas. Marshall, who is moving a shovel outfit from West Liberty, Ohio, where he just finished his Big Four Railroad work.

M. Edw. McGuire finished his team work on the Big Four Railroad at Springfield, Ohio, and is moving this outfit to Collinsville, Illinois, on a piece of the new Pennsylvania Railroad cut-off that he subbed from the Walsh Construction Co.

Tom Walsh and W. A. Durkin of the Walsh Construction Co. took in one of the world series ball games here, and were busy after the game subletting a part of their Pennsylvania Railroad work near Collinsville, Illinois.

Walter Lonergan came in from northern Illinois to attend a couple of world series games here.

M. L. Windham, Centralia, Illinois, reports a standard gauge shovel outfit idle in Southern Illinois. Windham has been busy shipping peaches off his orchard at Creal Springs. He shipped 126 carloads up to this writing.

Ed. Dimmick came in from Texas. He is going to look after the Walsh Construction Co. work on the Pennsylvania Railroad at Collinsville, Illinois.

A. L. Cook came in from Ottawa, Kansas, to attend the third ball game between the Cardinals and New York Yankees. One game was enough for him.

The J. J. McCaughey Co. have taken Section 1 from the Walsh Construction Co. on the Pennsylvania Railroad cut-off near Collinsville, Illinois. They are moving a 4-yard shovel outfit on to this.

John Kenney is placing a 2-yard car outfit on a part of the J. J. McCaughey Co. work on the Pennsylvania Railroad near Collinsville, Illinois. Mr. Kenney has another small shovel outfit idle that he wants work for. 1205 North 18th Street, East St. Louis, Illinois, will catch him.

Contractors when in want of work or labor for their outfits get in touch with the Koenig Labor Agencies, 612 Walnut Street, St. Louis, Missouri, or 501 Delaware Street, Kansas City, Missouri.

PALMER MOLDED BRAKE BLOCKS
PAY *for* THEMSELVES

ECONOMIZE on brake renewals by using "Palmer" Molded Brake Blocks. They wear twice as long as the ordinary kind and pay for themselves in renewal labor costs alone. Palmer Molded Brake Blocks avert costly shut-downs by keeping your machines in service longer.

PALMER ASBESTOS & RUBBER CORP.
2741 Clybourn Avenue, Chicago

"BEST BY TEST SINCE 1873"

DURABILITY

The following is part of a letter dated May 13, 1926, received from C. W. Marshall, railroad contractor of Kansas City, Missouri.

"We have used Taylor-Mesaba Hoisting Chain on our Model 60 Marion Shovel and we have found it very satisfactory. We have used it in rock cuts and it has run up to 200,000 cubic yards, and we consider this satisfactory and good wear." (Signed) C. W. MARSHALL, By R. B. Marshall.

It will pay you to investigate.

TAYLOR MESABA
STEAM SHOVEL HOISTING CHAIN

S. G. TAYLOR CHAIN CO.
502 Marquette Bldg. (Established 1873) CHICAGO, ILL.

SHOTS FROM THE FIRING LINE — Cont.

Twin Cities Notes

BY J. C. YETTER

Nelson, Mullen & Nelson were awarded three grading contracts at the state letttng on October 5th.

The M. J. Nolan Company have completed their paving contract on Highway No. 5.

Ira Cox, Sioux Falls, South Dakota, was low bidder on the Osakis, Minnesota, grading project on October 5th.

The wet weather during the month of September has delayed most of the grading and paving work in this section.

W. E. Ryman, 63 North 15th Street, Minneapolis, Minnesota, has been up in the northern part of the state getting a "Seventy-Five" ready for shipment for Foley Brothers.

The death of Earl Cravens, one of the most highly-respected contractors in the Northwest, came as a shock to his many friends. He was a man of keen judgment, and one of the best earth-moving contractors in the business. He was associated with Winston Bros. Co. of Minneapolis since 1896.

Canada

Montreal and Vicinity

BY J. M. WARD

The Duke-Price Power Company have about decided to put up a smelting and refining plant at Arvida.

The City of Montreal will shortly call for tenders for a new main sewer to cost $1,750,000. It is expected that this job will be let in two or three sections.

The National Hydro-Electric Company expect to develop 100,000 H. P. at Carillon, Province of Quebec. They are at present negotiating with the various governments.

The Mistassini Power and Paper Company are making good progress with the construction of their mill. There is a line of railway about 30 miles to be built into their plant, and it is expected that this will be proceeded with shortly.

William I. Bishop, Limited, have quite a large organization at work on their contract for the Ste. Anne Power and Paper Company at Beaupre, Province of Quebec.

The Alcoa Power Company is the name of the new concern which will take over the development of power at Chute a Caron for the Aluminum Company of Canada. The same interests are concerned, but the Alcoa Power Company will look after the construction.

Toronto and Vicinity

BY C. F. ENGLAND

P. Lyall & Sons Construction Co., Limited, are making good progress on their contract for the Toronto Terminal Company at the New Union Station, Toronto.

Northern Construction Co. and Stewart & Welch are getting along nicely on their contract, Section 8, Welland Ship Canal. There is still, however, quite a lot of work to do before completion.

A Curiosity—

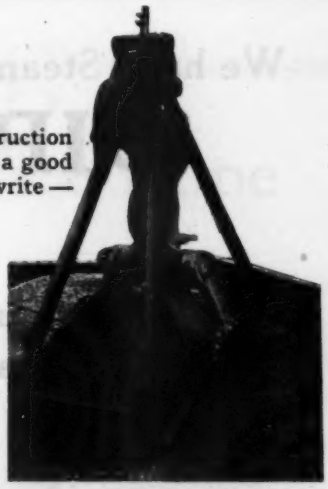
but not a rare one

Next time you get to Indianapolis, drop in on the Kuert Construction Company. They'll be glad to show you a bucket that has handled a good many hundred thousand cubic yards of material, and now, they write—

"After ten years of service, it looks good for another ten. This WILLIAMS Bucket is used mostly for unloading concrete materials from cars, handling 8 to 10 cars of aggregate a day. Upkeep cost has been very small."

And this is not unusual for a WILLIAMS. Even after many years of the hardest digging or rehandling, the WILLIAMS is right on the job, making good on the guarantee against breakage that stands behind it.

Drop us a line for names of contractors near you who are saving bucket expense and cable expense by using WILLIAMS Buckets for excavating and rehandling.



It's "all bucket"! No counterweights on a Williams. The weight is all built right into the bucket where it adds strength as well as digging power.

G. H. WILLIAMS COMPANY, 603 Haybarger Lane, Erie, Pa.

Branch Offices: New York, Pittsburgh, Chicago

WILLIAMS

FAST-DIGGING BUCKETS

All Parts Guaranteed Against Breakage

SHOTS FROM THE FIRING LINE — Cont.

J. P. & R. B. Porter have been awarded contract for approaches on Canadian and American side of Buffalo-Fort Erie Bridge. The same firm has the contract for the bridge proper.

W. R. Worthington Construction Co., Limited, are working steadily with good results on their large North Toronto sewer job.

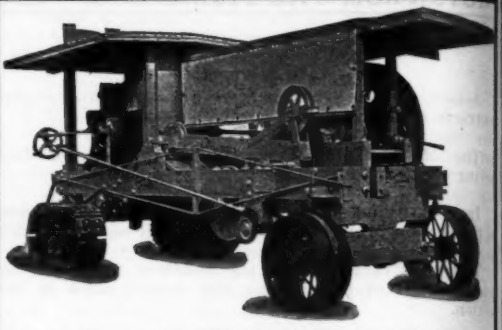
Vancouver Notes

BY J. C. MOON

Large expenditures on the renewal of trestles and track improvements on the Pacific Great Eastern Railway are forecast over the next three years by the Board of Directors. Many of the trestles have reached the age limit and are due to be renewed.

At a special meeting of representatives from the councils of the interested districts the plans of Harrington, Howard & Ashe, consulting engineers of Kansas City, for a suspension bridge over the First Narrows at Vancouver, British Columbia, were approved, and it is expected will be ratified by full meetings of each of the councils interested. The proposed bridge has a center span of 1200 feet, with a clearance in the center of 165 feet, the estimated cost being about $3,000,000.

A contract has been let to Mr. J. H. Simmons of Winnipeg for a large portion of the work connected with the improvements to the yardage facilities of the Canadian Pacific Railway Company at Kimberly, British Columbia.



New Type "CLIPPER" Blast Hole Drill in Crawler or Round Wheel

The First Crawler Blast Hole Drill ever produced! Has proven an unqualified success.

When equipped with 40 H. P. gasoline engine for soft and excessively bad moving it gives a unit that shoves right through.

The "CLIPPER" is known among users as THE DRILL THAT DRILLS. One of the reasons it predominates.

The Loomis Machine Company
(Established 1842)
K Street, Tiffin, Ohio

We have Steam and Electric

DIPPER TRIPS

for your Revolving Shovels

Give us the shop number of your machine and we will send full information.

Specialty Department

BUCYRUS COMPANY, South Milwaukee, Wis., U. S. A.

In writing to the advertisers on this page please use post card bound in the center of this number.

SHOTS FROM THE FIRING LINE — Cont.

Municipal Engineer Eric D. Todd of South Vancouver announces that his staff are engaged in completing plans for sewer extensions estimated to cost about $100,000, which will be undertaken in the near future.

Winnipeg and Vicinity

BY D. V. REDDIN

Canadian National Railway Steam Shovel Inspector, Mr. W. F. Williams, accompanied the Bucyrus expert, Mr. F. F. Stein, from Winnipeg to point on the Hudson Bay Railway where new Bucyrus 30-B Diesel dragline is to be erected. We believe this machine has created a record on account of the distance north of Winnipeg where it is being operated, viz., approximately 725 miles from the gateway to the west.

Tomlinson Construction Company, Limited, are using Bucyrus machinery at Entrance, Alberta, and Great Falls, Manitoba.

Lake Bar Sand and Gravel Company propose to open another gravel pit north of St. Andrews Locks, Manitoba. They will transfer one of their Bucyrus steam shovels to new site.

Mr. W. S. Tomlinson has announced the formation of North West Gravel and Coal Co., Limited. They will operate pit at Springfield, Manitoba, and also lease equipment from the Great West Sand and Gravel Company.

The Western Drainage Company, Limited, are operating a Bucyrus Class-9½ gasoline dragline on the drainage ditch which they are excavating near Dominion City, Manitoba. Eddie Vadeboncouer is in charge of work.

ONE PRINCIPLE FOR TWENTY YEARS

PITTSBURGH Extension Side Dump Cars will dump any size or shape of rock that can be loaded into it. The side of the car, or door, in dumping, turns down forming an extension to the floor, leaving an open side free of all obstruction and discharging the load clear of the track.

CLARK CAR COMPANY
BALANCED DOOR DUMP CARS
PITTSBURGH, PA.

San Francisco, Rialto Bldg. Chicago, 400 Railway Exchange Bldg. Richmond, Va., Am. Nat. Bank Bldg.
New York, 52 Vanderbilt Ave. Boston, 683 Atlantic Ave.

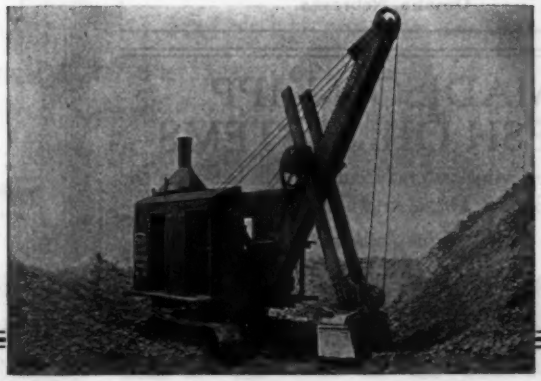
Roebling

Blue Center Steel Wire Rope

proves its superiority when used on important construction work.

Strong — tough — uniform — it withstands the severe stresses, sudden pulls and abrasion to which excavating ropes are subjected.

John A. Roebling's Sons Co.
Trenton, New Jersey



In writing to the advertisers on this page please use post card bound in the center of this number.

TRADE NOTES

The Lincoln Electric Company, Cleveland, Ohio, has recently issued an attractive 24-page bulletin called Automatic Arc Welding with Lincoln "Stable Arc" Automatics. The bulletin is attractively illustrated, and contains information relative to the cost of joining steel. Copy of the bulletin may be obtained upon writing the above manufacturer.

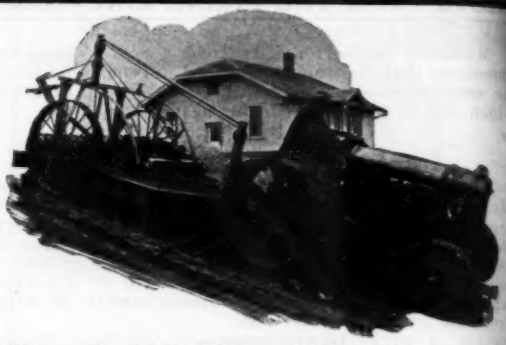
The Hayward Company, 50 Church Street, New York, New York, has just issued a miniature pamphlet No. 666, describing and illustrating their dragline buckets. Copies may be had upon addressing the above manufacturer.

REVIEW OF BOOKS and CATALOGS

We shall be glad to review, in this column, such books and catalogs as are sent to us.

CLEARING AWAY FOR THE COMPORTS OF LIFE — 7¾ by 9¾, 16 pages and cover. A little outline of the story of the American Railways. "A little reminder of the debt which American prosperity must ever show to the builders and operators of American railroads." It will be sent to you upon request to the *Ingersoll-Rand Company, 11 Broadway, New York City.*

BAKER-MANEY SELF-LOADING SCRAPERS — 7¼ x 10½, 32 pages and cover. Illustrates and describes the Baker-Maney line of tractor-drawn scrapers. The booklet will be sent to our readers upon request to the *Baker Manufacturing Company, Springfield, Illinois.*



Miami's Haul Your Earth! Costs Less Than Dragging It!

Ninety per cent of your loose earth moving cost by tractor consists of drivers wages, gasoline, oil and general upkeep, or $10.00 to $12.00 per day.
You MUST MOVE a given yardage to repay this expense. YOUR PROFITS come only from the EXCESS yardage per day.
THE MIAMI one-man POWER SCRAPER delivers twice the yardage of the common drag type scraper, because the pan is elevated in front after loading and hauls this load on roller bearing wheels to the dump, instead of dragging it.
Your driver delivers a full load where you want it. Delivers more loads per day. This extra yardage at the dump means a considerable larger operating profit per day. Hundreds of contractors are getting it. ARE YOU?

Write today for complete information on the Miami Scraper.

THE MIAMI TRAILER-SCRAPER COMPANY
603 South Clay Street **Troy, Ohio**

STROUD 5½-YARD WAGON

The Little Red Wagon Mfg. Co.
Omaha, Nebraska

MADISON-KIPP FRESH OIL SYSTEMS

FOR the Cylinders and Bearings will lengthen the life of Steam, Diesel and Gas Shovel Engines.

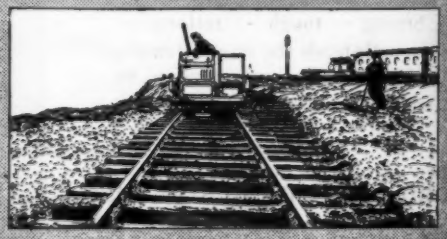
Write for Information.

FRESH OIL *Madison-Kipp Lubricators*

THE NORDBERG PATENTED
TRACK SHIFTER

It will shift and raise track on waste Dumps-open Pit Mines Quarries-Construction Work Behind Steam Shovels

Here is a machine that will eliminate the use of track jacks and bars, cut track crew to less than half, and do four times the work.
Write for Bulletin GR-8.



Nordberg Mfg. Co. MILWAUKEE WIS. U.S.A.

ETTER MAKE MISTAKES THAN KILL INITIATIVE

No man, nor any organization of men, is right all the time. The only way to avoid all mistakes is to avoid all initiative. Some manufacturers take the attitude that it is their business only to sell goods, and that it is the customer's business to know how to use them. This a comfortable attitude, and it undoubtedly reduces the manufacturer's chances o make mistakes.

We would rather take the chance of making a mistake in a sincere effort to save money for a customer by recommending a change in the kind of explosive he is using or in his method of blasting, than to follow the easy course of selling him what he has always used, when, in our judgment, this is not the best explosive for his work.

Our salesmen are drilled in this point of view. Admittedly, they are not right all the time; but remember that they are instructed not merely to get the order, but to get the order for the explosives that will break the most material for you, in the best condition, and at the lowest cost. If they insist upon trying to help you, it will be to your interest to consider their recommendations carefully.

For after all, our men are familiar with many blasting operations. They do not know the details of your own work as you do, but they are often able to save money for the man who will interpret their wide experience in terms of his own intimate knowledge of his job.

To mention only a few of the Hercules contributions to better blasting: Hercules Special No. 3 often reduces costs underground in the same proportion that Hercules Special No. 1 reduces costs in the open; Herco blasting saves from 20% to 40% in well-drill shooting when it is applicable; Hercules Extra Gelatins are affecting marked savings by replacing the regular gelatins on many jobs. If not one of these, then perhaps some other suggestion by a Hercules salesman may be valuable to you.

ALLENTOWN, PA.
BIRMINGHAM
BUFFALO
CHATTANOOGA
CHICAGO
DENVER
DULUTH
HAZLETON, PA.
HUNTINGTON, W. VA.
JOPLIN, MO.
LOS ANGELES
LOUISVILLE
NEW YORK CITY
NORRISTOWN, PA.
PITTSBURG, KAN.
PITTSBURGH
POTTSVILLE, PA.
ST. LOUIS
SALT LAKE CITY
SAN FRANCISCO
WILKES-BARRE, PA.
WILMINGTON

HERCULES POWDER COMPANY
(INCORPORATED)
949 King Street — Wilmington, Delaware

In writing to Hercules Powder Co., Inc. please use post card bound in the center of this number.

When the shovel had finished with the grading work it was moved to the top of Wahoo Mountain to open up a gravel pit, making its own road as it went. The fleet of Mack and Ford trucks are here waiting to be loaded with gravel.

Widening one of the cuts with the new one-yard machine. The material was loaded and hauled away to widen fills. This work was necessary because the old railroad bed was for a single track only.

Dumping at One of the Fills, Building Up a Bed Ready for the Gravel Surfacing

An overhead crossing between Alexander City and Kellyton, Alabama, over the Central of Georgia Railroad. This bridge is of German design and the first of its type ever built in Alabama.